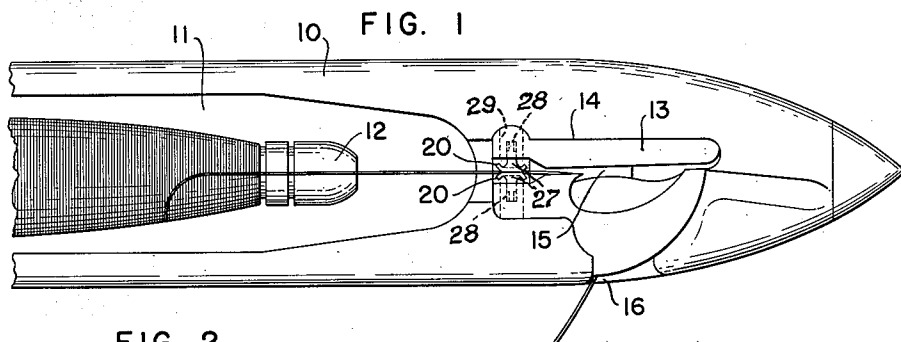
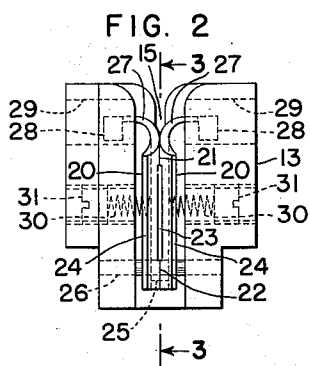
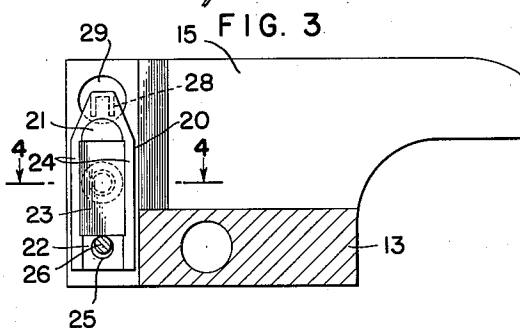
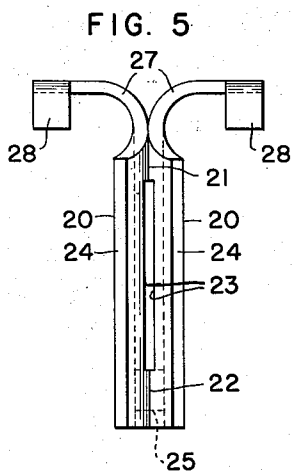
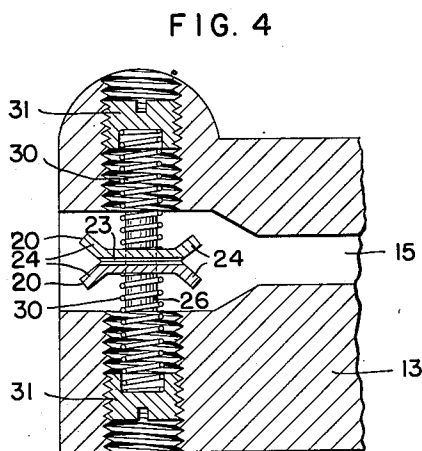


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 LOOM SHUTTLE TENSIONING DEVICE

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LOOM SHUTTLE TENSIONING DEVICE

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This invention relates to loom shuttle tensioning devices, and it relates more particularly to the tension members used in the threading blocks of automatically threading loom shuttles.

It has been usual to employ, in shuttles having threading blocks of the automatic type, tension members for causing a frictional drag on the yarn as it passes through the threading block. Such tension members are usually mounted at the end of the threading block where the yarn enters the channel, and ordinarily comprises a pair of vertically disposed spring pressed plates each having a bent-over portion at the top. The ends of the bent-over portions are usually located in a transverse hole in the threading block, and the lower end of each of said members is provided with an aperture through which a pin extends.

In the operation of shuttles, particularly in high speed looms, there is a tendency of the yarn to balloon as it is fed off the end of the bobbin, and there is a resultant vertical movement of the yarn usually occurring between the coacting faces of the tension members, and when such ballooning and the vertical movement of the yarn becomes excessive, the block may become unthreaded and sometimes the yarn will be overcast on the parts of the threading block or on the body of the shuttle itself.

Heretofore the tension members have been provided with various features and adjuncts for the purpose of minimizing the tendency of the yarn to unthread itself from the threading block, but none of these have been entirely successful, although in some instances, certain advantageous results have been obtained.

The principal object of the present invention therefore is to provide tension members of an improved form for loom shuttles, the use of which will minimize the tendency of the filling yarn to pass upwardly and out of engagement with the tension members and thereby unthread the shuttle.

A further object of the present invention is to provide an improved form of tension members, of the character aforesaid, which may be readily and inexpensively made and placed in the threading blocks.

A further object of the present invention is to provide tension members, of the character aforesaid, which may be used in threading blocks of the type at present in common use.

The nature and characteristic features of the present invention will be more readily understood from the following description, taken in connec-

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tion with the accompanying drawing forming part hereof, in which:

Figure 1 is a top or plan view of the threading end of a loom shuttle provided with a threading block in which tension members embodying the main features of the present invention are mounted;

Fig. 2 is an end elevational view, somewhat enlarged, of a threading block, detached from the shuttle, having a pair of tension members of the present invention mounted therein;

Fig. 3 is a vertical longitudinal section taken on the line 3—3 of Fig. 2;

Fig. 4 is a fragmentary horizontal section taken on the line 4—4 of Fig. 3, further enlarged; and

Fig. 5 is a side elevation of a pair of tension members of the present invention, detached, and further enlarged.

It should, of course, be understood that the description and drawing herein are illustrative merely, and that various modifications and changes may be made in the structure disclosed without departing from the spirit of the invention.

Referring to the drawing, in the particular embodiment of the invention therein shown, the shuttle body 10 may be made of wood or other suitable material and has the usual bobbin chamber 11 in which the bobbin 12 is held by the usual means (not shown) whereby it may be readily discharged and a new bobbin inserted as the yarn runs out from time to time.

The threading block 13 comprises a casting, preferably made of a hard material such as cast iron, although brass or other suitable material may be used, if desired. The threading block 13 is mounted in a suitably shaped recess 14 in the rear end of the body portion 10 of the shuttle.

The body portion of the threading block 13 is provided with a longitudinal thread channel 15 through which the filling yarn passes to the side delivery eye 16 during the weaving operation.

The threading block 13 may be of any desired shape and may be provided with the usual horns and other parts functioning to guide the filling yarn into the thread channel 15 of the threading block on the first pick and in the usual manner to complete the threading operation upon the first return pick of the shuttle.

The tension members 20 contemplated by the present invention are preferably mounted in the thread channel of the threading block near the entrance end thereof. The principal novel feature of the present invention resides in the peculiar conformation of the tension members 20,

and more particularly to the contiguous or opposed faces of said tension members.

In the preferred form of the tension members 20, as shown in the drawing, the opposed faces of said tension members 20 are each provided at the top with a surface 21 and a similar surface 22 at the bottom, which surfaces respectively bear against each other when there is no yarn passing between said tension members.

The face of each tension member 20, between the top surface 21 and the bottom surface 22, is ground away a slight amount to provide a slightly recessed face 23 so that when the tension members are mounted in the threading block there will be a space between the tension members, the width of which is less than that of the diameter of the filling yarn to be controlled.

The width of the space thus provided will vary according to the size and degree of hardness of the yarn, but in each instance will be less than the diameter of the yarn. For example, with an ordinary cotton yarn of a diameter of about .005 of an inch, each of the tension members will have the portion of its working face between the top and bottom ground away to a depth of about .001 of an inch so that the passageway for the yarn thus provided will be of a total width of about .002 of an inch.

The contiguous faces 23 of the tension members 20 are preferably parallel, although the space may, if desired, be tapered from the top to the bottom, and also, while the recesses have been shown as being in each of the tension members, the same may be located entirely in one of the tension members, and the other may have an unbroken plane surface from top to bottom.

Each of the tension members may be provided with angularly disposed side flanges 24 which will facilitate the free passage of the yarn between the tension members 20.

Each of the tension members 20 may also be provided with the usual aperture 25 through which extends the pin 26 which is positioned in the lower portion of the threading block 13, and, as is customary, the aperture 25 is preferably somewhat larger than the diameter of the pin 26.

The upper end of each tension member 20 may be bent over as at 27 to provide a lug-like extension 28 which is positioned in the transverse hole 29, drilled in the upper portion of the threading block 13. It will thus be seen that each of the tension members is guided at the bottom by the pin 26, and at the top by the positioning of the extension 28 in the hole 29.

For the purpose of imparting the requisite tension to the tension members 20 so that the same will normally provide the required drag on the filling thread as the same passes therebetween there are provided coil springs 30 which are seated in hollow screws 31. The screws 31 are threaded in the side walls of the threading block 13 preferably in alinement with each other and with their axes about midway the pin 26 and the hole 29.

The hollow screws 31 in which the springs 30 are seated serve as means for regulating the degree of tension of the tension members 20.

In the use of the foregoing arrangement it will be noted that the threading of the shuttle will be accomplished in a manner similar to that of the shuttles constructed as at present in common use. On the first pick of the shuttle, the filling yarn will be dragged into the thread channel and down between the contiguous faces of

the tension members 20, which will be pushed apart a sufficient distance as the filling yarn passes down between the same, and the downward movement of the yarn will result in the same becoming located in the narrow space between the portions 23 of the contiguous faces of the tension members 20.

Thereafter, as the shuttle is picked back and forth across the loom, by reason of the running off of the yarn from the end of the bobbin there will be a vertical component of the movement of the yarn between the contiguous faces of the tension members 20 but, by reason of the peculiar conformation of those faces and the resulting provision of the narrow passageway provided the yarn will be confined between the portions 23 of the contiguous faces of the tension members, and there will be no tendency of the yarn to become unthreaded by reason of an excessive up and down movement of the yarn caused by the ballooning thereof as the same is fed off the bobbin, or for any other reason.

I claim:

1. In a loom shuttle of the automatic threading type having a threading block mounted in one end thereof which threading block is provided with a thread channel through which the filling yarn passes, and spring pressed tension members mounted in the threading block and between which the filling yarn passes, said tension members having their intermediate portions spaced to provide a yarn passageway of a width less than the thickness of the yarn throughout the extent of said passageway.

2. In a loom shuttle of the automatic threading type having a threading block mounted in one end thereof which threading block is provided with a thread channel through which the filling yarn passes, and spring pressed tension members mounted in the threading block and between which the filling yarn passes, said tension members having their contiguous faces shaped to provide therebetween a yarn passageway of a width less than the thickness of the yarn throughout the extent of said passageway.

3. In a loom shuttle of the automatic threading type having a threading block mounted in one end thereof which threading block is provided with a thread channel through which the filling yarn passes, and spring pressed tension members mounted in the threading block and between which the filling yarn passes, said tension members having their contiguous faces shaped to provide portions at the top which abut against each other when the shuttle is unthreaded and having the intermediate portion thereof recessed to provide a yarn passageway of a width less than the thickness of the yarn throughout the extent of said passageway.

4. In a loom shuttle of the automatic threading type having a threading block mounted in one end thereof which threading block is provided with a thread channel through which the filling yarn passes, and spring pressed tension members mounted in the threading block between which the filling yarn passes, said tension members having their contiguous faces shaped to provide portions at the top and bottom which bear against each other when the shuttle is unthreaded and at least one of said members having the intermediate portion thereof recessed to provide a yarn passageway of a width less than the thickness of the yarn throughout the extent of said passageway.

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5. In a loom shuttle of the automatic threading type having a threading block mounted in one end thereof which threading block is provided with a thread channel through which the filling yarn passes, and spring pressed tension members mounted in the threading block and between which the filling yarn passes, said tension members having their contiguous faces shaped to provide portions at the top and bottom which bear against each other when the shuttle is unthreaded and having the intermediate portions thereof recessed to provide a yarn passageway

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of a width less than the thickness of the yarn throughout the extent of said passageway.

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